STATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, *Governor*

DEPARTMENT OF FISH AND GAME
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January 10, 2000

Commissioner Robert A. Laurie
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Dear Mr. Laurie,

The Department of Fish and Game has reviewed the Draft Environmental Impact Statement (DEIS) for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada. The Proposed Action addressed in this DEIS is to construct, operate, and monitor, and eventually close a geologic repository at Yucca Mountain in southern Nevada for the disposal of spent nuclear fuel and high-level radioactive waste currently in storage at 72 DOE sites across the United States. The DEIS evaluates (1) projected impacts on the Yucca Mountain environment of the construction, operation and monitoring, and eventual closure of the geologic repository; (2) the potential long-term impacts of repository disposal of spent nuclear fuel and high-level radioactive waste; (3) the potential impacts of transporting these materials nationally and in the State of Nevada; and (4) the potential impacts of not proceeding with the Proposed Action.

The Department is providing comments on this DEIS as the state agency which has the statutory and common law responsibilities with regard to fish and wildlife resources and habitats. California's fish and wildlife resources, including their habitats, are held in trust for the people of the State by the Department (Fish & Game Code section 711.7). The Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species (Fish & Game Code section 1802). The Department's fish and wildlife management functions are implemented through its administration and enforcement of the Fish and Game Code (Fish & Game Code Section 702). The Department is a trustee agency for fish and wildlife under the California Environmental Quality Act (see CEQA Guidelines, 14 Cal. Code Regs. Sec. 15386(a)). The Department is providing these comments in furtherance of these statutory responsibilities, as well as its common law role as trustee for the public's fish

and wildlife.

The Department commented on the Site Characterization Plan (SCP) on March 23, 1989, and those comments are hereby incorporated by reference. In addition, the Amargosa nitrophila, Nitrophila mohavensis, a plant species listed as Endangered by both the State of California and U.S. Fish and Wildlife Service, should be included on the list of species contained in the March 23, 1989 letter.

The Department is concerned with the impacts of potential transportation routes on desert bighorn sheep. Our greatest concern relates to the potential for further fragmentation of bighorn sheep habitat. Currently, there are no major barriers to movement by bighorn sheep in the area lying north (and west) of Interstate 15 in California, Nevada, Arizona, and Utah, east of California Highway 395 in California, and south of Interstate 80 in Nevada and Utah. This is one of the largest areas within the distribution of desert sheep that has not been fragmented by fenced transportation corridors. The fact that movement corridors for desert sheep have remained relatively intact over time within this geographic area should be considered in the DEIS's evaluation of the impacts of the repository and the resultant potential effects on opportunities for movements by desert sheep. The Department acknowledges that Nevada Highway 95 could be considered to be a barrier, but it is not as disruptive to sheep movements as interstate highways. If the Proposed Action results in the construction of new highways, railroads, or road improvements with new fences, such shipment corridors would pose a barrier to bighorn sheep movements. This example illustrates how the lack of a detailed, comprehensive transportation plan in the DEIS that identifies routes, modes, and impacted populations and environments, prevents adequate evaluation of potential impacts from the Proposed Action. In addition to the physical barriers that the larger highways and fences present, these types of highways also encourage more traffic volume and faster vehicle speeds. The speed and volume of vehicles on the highways is also a major consideration in analyzing impacts to movement corridors by desert sheep. Fragmentation of the habitat within this area, and further barriers to potential movements by desert sheep across California Highway 127, Nevada Highway 95, U.S. Highway 395, as well as secondary roads such as those that run from Pahrump to Las Vegas or from Death Valley Junction to Pahrump , are major causes for concern. With each potential barrier, the long-term conservation of large, mobile mammals becomes more problematic. The DEIS does not contain information regarding proposed transportation routes within California, and does not contain a discussion of the potential for impacts to desert sheep associated with construction or upgrading any of the existing roads. The DEIS is therefore inadequate in its analysis of impacts to desert bighorn sheep. The DEIS should be rewritten to include information designating transportation routes, a description of proposed highway improvements, and an evaluation of these improvements on movement patterns of desert bighorn sheep. Proposed mitigation measures to offset potential impacts to movement patterns of bighorn sheep should also be included. The information contained in the document as written is not adequate to make an informed, rational decision regarding the impacts of the proposed repository on desert bighorn sheep.

General Inadequacies

1. The DEIS lacks a complete and accurate project description. There is no description of transportation of radionuclide waste through California, no environmental consequences evaluation, and no mitigation offered. The DEIS should disclose the potential level of shipments through California, and evaluate potential impacts. In particular, transportation routes could potentially impact habitat for the Amargosa nitrophila, Nitrophila mohavensis, Amargosa vole, Microtus californicus scirpensis, State and Federal Endangered, and desert tortoise, Gopherus agassizii, State and Federal Threatened. The DEIS should include a description of transportation routes, improvements, impacts to these species as well as other State Species of Special Concern, and proposed mitigation measures to offset these impacts. The Department could not find any detailed description of the repository closure including the sealing of shafts and ramps, etc. This element of the project should also be discussed in more detail.

2. There is no evaluation of potential long-term impacts to animals and plants. All the long-term evaluations are based upon human health considerations. The DEIS makes the faulty assumption that relatively few predicted latent cancer fatalities will result in no impacts to aquatic, wildlife, and plant populations dependent upon the water resources affected by the project. These resources have taken tens to hundreds of thousands, and millions of years to adapt to their current habitats. These time scales should be considered in determining potential impacts to these resources. The Environmental Consequences of Long-Term Repository Performance includes three thermal load scenarios for evaluation, but does not incorporate the potential for long-term climate change to radically change the underlying assumptions for the evaluation. For example, a far wetter climate within the next million years could radically alter groundwater movement and waste container disintegration.

3. The apparent level of uncertainty regarding key elements of the project impacts is too high to allow a reasoned decision on the adequacy of the proposed project site. The uncertainty is based either upon a current lack of information, disagreement between experts, or the considerable lengths of time involved in the exposure of the environment to project impacts. The following are examples:

Para. 1, p. 3-50 identifies scientific disagreement regarding groundwater levels. Parties agreed that more research is needed.

Par. 1, p. 3-51 describes uncertainties regarding aquifer conductivity estimates.

Par. 2, p. 3-52 describes unknowns associated with a steep aquifer gradient found, and concludes:" ...there are no obvious geologic reasons for the steep gradient, and it is still under investigation."

Last par., p 3-52 explains that the actual and relative amounts of inflow to volcanic

aquifers from each source are not known.

Par. 5, p. 3-53 states that the actual and relative amounts of outflow from volcanic aquifers are not known.

Par. 4 and 5, p. 5-10 describe the uncertainty that exists regarding the influence of heat on water movement in the unsaturated zone, concluding that there could occur "...much higher seepage rates than this analysis considered in the period after the thermal pulse." More studies are planned by the DOE.

Par. 1, p. 5-13 states that there are differing opinions regarding the mechanisms of release and solubility of specific radionuclides, particularly neptunium-237 which is an important contributor to long-term health effects.

Par. 3, p. 5-13 states that "In the 1-million year period after closure, there could be some changes in dose rates.....that could increase estimated dose rates by an undetermined amount. DOE is planning additional studies..."

Par. 1, p. 5-28 describes the "high degree of uncertainty in the value of the average corrosion rate" of waste packages which could result in package failures occurring within several hundred years to over one million years. A rather wide margin of potential error.

The level of uncertainties involved are exemplified by statements in paragraph 1, p. 5-11 referring to water seepage through walls: "Over time, the number and locations of seeps would increase or decrease, corresponding to increased or decreased infiltration based on changing climate conditions." "Ongoing studies suggest water travels through the unsaturated zone at highly variable rates from less than 100 years to thousands of years."

4. The DEIS is not consistent in its evaluation of environmental consequences over long time intervals. It takes current predictions and projects them into the future to be used in the long-term analysis. For example, in the last paragraph p. 5-23 the DEIS concludes that no contamination of the carbonate aquifer is possible because there is currently an apparent hydraulic head of 120 feet in this aquifer forcing water up into the volcanic aquifers, therefore no contamination of surface springs in California would occur. This does not consider the potential for a future change in hydraulic gradients due to climate change, seismicity, etc. over very long periods of time. The potential of surface water contamination from groundwater should be more rigorously evaluated and potential impacts described.

Based upon the considerable unknowns involved with this project, the following can be concluded from this DEIS::

1. The corrosion of waste packages <u>will</u> occur over an unkown amount of time,

resulting in the release of unkown amounts of radioactive material into the environment, having unknown consequences.

2. The impacts of surface transport of radionuclides through California is unknown.

Because of the considerable unknowns and uncertainties associated with this project, it appears Yucca Mountain has been selected as the final site for evaluation because either there are less uncertainties and unknowns present here than in other facilities evaluated, or it is thought that there is less risk to resources in this desert area to mitigate the uncertainties associated with this type of project in any locality. The resources in this area of California are no less valuable than those elsewhere. The document contains far too many uncertainties to allow a reasoned decision on the advisability of constructing the project at Yucca Mountain.

Thank you for the opportunity to provide comments on the proposed project. If you have any questions, please call Ms. Denyse Racine, Environmental Specialist, at (760) 872-1158.

Sincerely,

Curt Taucher
Regional Manager

cc:Barbara Byron, California Energy Commission
D. Racine, DFG, Bishop
D. Wong, DFG, Bishop
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